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OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P.

1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER

WHEELER, THURMAN MICHAEL

ART UNIT

PAPER NUMBER

1619

NOTIFICATION DATE

DELIVERY MODE

07/01/2011

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com

oblonpat@oblon.com

jgardner@oblon.com

Office Action Summary**Application No.**

10/585,659

Applicant(s)

BIANCHI ET AL.

Examiner

THURMAN WHEELER

Art Unit

1619

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 February 2011.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 and 13-21 is/are pending in the application.
- 4a) Of the above claim(s) 10, 11 and 14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 13, 15-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
- Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Request for Continued Examination

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicants' submission filed on 02/10/2011 has been entered.
2. Claims 1-11 and 13-21 are pending.
3. Claims 10, 11 and 14 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to nonelected Groups. Claims 20-21 are newly added.
4. Any rejection or objection not reiterated in this Action is withdrawn.
5. Herein claims 1-9, 13 and 15-21 are for further prosecution.

Rejections Withdrawn

6. The rejection of claims 1-9, 13 and 15-19 under 35 U.S.C. 103(a) as being obvious over Cavallotti et al (EP 0780374) in view of Barnes et al (EP0442549) and Reinhardt et al (USP 531324) as evidenced by Bianchi et al (WO 2004007452) is withdrawn in view of applicant's arguments and the new grounds of rejection below.

New Grounds of Rejection

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining differences between the prior art and claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various

claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1-9, 13 and 15-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reinhardt et al (USP 5391324, of record) in view of Cavallotti et al (EP 0780374, of record) and Buzzaccarini et al (US 6548470) as evidenced by Bianchi et al (WO 2004007452, of record).

Applicants claimed invention is directed to a liquid formulation of imidoalkanepercarboxylic acids in the form of an aqueous dispersions comprising water and a nonionic surfactant.

Reinhardt teaches suspending a peracid in an aqueous mixture of nonionic surfactants to provide suspensions that are physically and chemically stable over a relatively long period, (col.2, lns.32-36). Reinhardt teaches that the storage-stable aqueous suspensions of organic peracids comprise 1 to 50% by weight of a surfactant mixture (col.2, lns.51-53).

Reinhardt teaches that all solid peroxy mono- or - dicarboxylic acids which are nearly water-insoluble at pH 2-6 can be employed as peroxy carboxylic acids in the formulations, where the concentration of the peroxy carboxylic acid in the formulation is preferably 3-20%. The particle size of the

peroxycarboxylic acid used for rapid dissolution is 0.5-15 microns.

Reinhardt teaches that the nonionic surfactant system for the suspensions comprises lower ethoxylated fatty alcohol and a medium to higher ethoxylated fatty alcohol (col.3, lns.20-25).

Particularly, Reinhardt teaches the preparation of liquid bleaches based on phthaloylaminoperoxycaproic acid (PAP) comprising intensively mixing the nonionic surfactants, and then the peroxycarboxylic acid is slowly stirred in and the mixture is homogenized (col.4, lns.43-52). Further, varied suspensions were prepared having viscosities in the range of 200-1500 mpas (see examples 1-6, col.4, lns.55-68).

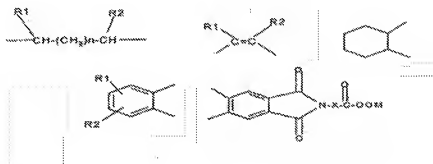
Reinhardt teaches peroxycarboxylic acid suspensions in combination with a detergent (col.4, lns.25-26).

Reinhardt teaches peroxycarboxylic acid suspensions further comprising ethylenediaminetetramethylenephosphonic acid (EDTMP) (col.4, lns.25-26) (col.3, lns.60-66).

Further, Reinhardt teaches that peroxycarboxylic acids in the moist state are safer to handle than in the dry state. Further, Reinhardt teaches that the advantage of liquid bleaching systems is their simple preparation in which no cost-intensive processing or drying steps are necessary (col.1, lns.30-36).

However, the Reinhardt reference does not explicitly embody all of the imidoalkanepercarboxylic acids as claimed in claim 1, or that the nonionic surfactant is present in the formulation in the range of 0.005%-0.3%.

Cavallotti teaches an aqueous dispersion of imidoalkane percarboxylic acid in the beta crystal form (p.2, lns.42-60; all of p.3; p.4, lns.1-42) having a water content of 8-10% (p.5, lns.9-21). Chemical structures shown below (p.2, lns.42-58 to p.4, lns.1-21).



n is an integer 0, 1 or 2; R¹ is hydrogen, chlorine, bromine, alkyl C1-C20, alkenyl C2-C20, aryl or alkylaryl; R² is hydrogen, chlorine, bromine or a group of formula -SO₃M, -CO₂M, -CO₃M, -OSO₃M; M indicates hydrogen, an alkaline metal or ammonium ion or the equivalent of an alkaline-earth metal ion and X indicates alkylene C1-C19 or arylene; Y is = X and preferably an alkylene C3-C19;

Cavallotti teaches imidoalkane percarboxylic acid is phthalimido-peroxyhexanoic acid (p.2, line 41).

Cavallotti teaches an aqueous dispersion of imidoalkane percarboxylic acid can have a detergent additive such as a sequestering agent that includes hydroxycarboxylic acids, polyphonic acids and HEDP (p.5, lns.13-15). Cavallotti teaches aqueous dispersion of imidoalkane percarboxylic acid comprising eutectic composition (imidoalkane percarboxylic acid with water) has a viscosity of 15 centiPoise at 75°C (p.4, lns.49-52). Stability tests were performed for PAP at 75°C, 85°C and 90°C as shown in Tables 1 and 2 (see examples 8-9-10), wherein 0.6% of lost of active (peroxy) oxygen with sequestering agents, e.g. HEDP (p.5, lns.13-15; p.6, lns.11-12).

Cavallotti teaches the preparation of phthalimido-peroxyhexanoic acid (PAP) (see Examples 1-7 on page 5, lns.57-59) where a sequestering agent HEDF (see example 11-14 on page 6, lns.25-35) is added after the product has been formed. Further, Cavallotti teaches heating a suspension of imido-alkanpercarboxylic acid in water up to the complete solid melting and subsequent separation of the organic phase (eutectic phase comprising an aqueous dispersion of imidoalkanpercarboxylic acid and water) from the aqueous phase and recovery of the organic phase containing the imidoalkanpercarboxylic acid (p.2, lns.37-39).

Further, Cavallotti teaches a process that provides an alkanpercarboxylic acids with reduced content in water around 10% by weight that is constant for the successive formulations by avoiding the drying process, which is very slow and dangerous from the industrial point of view (p.2, lns.33-35).

Cavallotti teaches that the constancy of the water content in the final peracid is a very important factor for the purpose of the successive treatments of the product finishing. And, Cavallotti teaches that the preparation process wherein the formation of a eutectic provides the further benefit effect to purify the imido alkanpercarboxylic acid from possible polar substances present in the product such as impurities (p.5, lns.22-25).

As evidenced by Bianchi (WO 2004007452), imidoalkane percarboxylic acid are in an alpha crystalline form, stable at storage at the solid state, and when dispersed in water the alpha crystalline form is transformed into crystals of the beta crystalline form, stable in aqueous environment. The alpha crystalline form being characterized with respect to the known beta crystalline form of the prior art in that the respective spectra obtained by the X Ray Diffraction and the Surface Infrared Spectroscopy (IR/S) techniques show, with respect to those of the beta form of the same peracid, a different spectral

imagine at X rays and a typical absorption shift in the 1697-1707 cm^{-1} zone at IR/S towards higher frequencies, of the order of about 8-10 cm^{-1} (page 8).

Buzzaccarini teaches liquid bleaching compositions comprising water in 40 to 90%, and a peracid at 15% to 25% by weight of the composition, and also a nonionic surfactant (col.2, lns.62-67; col.5, lns.7-12; col.5, line 52; col.9, lns.38-67). Particularly, Buzzaccarini teaches using peracids such as phthaloyl amido peroxy hexanoic acid (also known as phthaloyl amido-peroxy caproic acid) (col.4, lns.41-46). Further, Buzzaccarini teaches that an advantage of the compositions of the present invention is that they are physically and chemically stable upon prolonged periods of storage (col.3, lns.54-56). Moreover, Buzzaccarini teaches that the compositions comprise a nonionic surfactant at a level of most preferably from 0.2% to 3% by weight of the composition (col.10, lns.5-10).

Claim 2 is a product by process claim, such that the determination of patentability is based on imidoalkanepercarboxylic acids itself. The patentability of a product-by-process claim is determined based on the structure imparted to the product by the process steps. Thus, Cavallotti teaches imidoalkanepercarboxylic acids as described above. Moreover,

when there is no evidence to support or reason to believe that a patentably distinct structure is imparted by the process steps, the burden of proving otherwise falls to the applicant (See MPEP § 2113).

It would have been obvious to one skilled in the art at the time of the invention to modify the aqueous suspension comprising a peracid and nonionic surfactants as taught by Reinhardt to include the imidoalkanepercarboxylic acids as taught by Cavallotti. Moreover, one skilled in the art would have recognized the advantage of using the purified imidoalkanepercarboxylic acids as provided by the teachings of Cavallotti to avoid unwanted impurities. Furthermore, one skilled in the art would have recognized the benefit of using the purified imidoalkanepercarboxylic acids having a constant amount of water content as taught by Cavallotti. Accordingly, one skilled in the art would have recognized the benefit of knowing the water content contained in the purified imidoalkanepercarboxylic acids, which would facilitate preparing formulations further comprising additives such as nonionic surfactants.

One skilled in the art would have recognized that a formulation comprising an imidoalkanepercarboxylic acid in water (in the moist state) is safer to handle than in the dry state as

taught by Reinhardt. Furthermore, one skilled in the art would have recognized from the teachings of Buzzaccarini that a physically and chemically stable peracid compositions could be provided using a surfactant from 0.2% to 3% by weight of the composition. Thus, one skilled in the art at the time of the invention would have been motivated to modify the formulation comprising a peracid and about 1 wt% of nonionic surfactant as taught by Reinhardt such that a lesser amount of nonionic surfactant could be used. Accordingly, one skilled in the art would have been able to follow the guidance provided by Buzzaccarini to provide a storage-stable formulation comprising a peracid and about 0.2 wt% of a nonionic surfactant. Moreover, one skilled in the art at the time of the invention would have been able to optimize the amount of nonionic surfactant in accordance with routine experimentation to provide a formulation having improved physical stability that was cost effective to prepare.

Accordingly, one skilled in the art would have had a reasonable expectation of success of providing the liquid formulation as claimed by applicants by following the teachings of Reinhardt, Cavallotti and Buzzaccarini, as a whole.

Accordingly, the claimed invention of instant claims 1-9, 13 and 15-21 were prima facie obvious to one skilled in the art

at the time of the invention was made especially in the absence of evidence to the contrary.

Response to Arguments

8. Applicants argue even where a general method that could have been applied to make the claimed product was known and within the level of skill of the ordinary artisan, the claim may nevertheless be nonobvious if the problem which had suggested use of the method had been previously unknown.

Applicants' arguments filed 10 Feb 2011 and 25 Feb 2011 have been fully considered but they are not persuasive, because Reinhardt and Buzzaccarini, as a whole, clearly teach that nonionic surfactants can be used to stabilize peracids. Moreover, Buzzaccarini teaches using nonionic surfactants in an amount of about 0.2 wt%, which is well within the instant claimed range of 0.005-0.3%. Furthermore, the instability of peracids would have been well known to those skilled in the art at the time of the invention.

Applicant's arguments directed towards the Cavallotti reference are moot in view of the new grounds of the rejection, especially since the teachings of Cavallotti are intended to include a broader range of peracids that could be used in a formulation, and also a process to provide purified peracids, which one skilled in the art at the time of the invention would

clearly have recognized the advantages of removing unwanted impurities in a formulation comprising a peracid and a nonionic surfactant.

Regarding the Declaration filed 2/25/2011 by Ugo Bianchi. It states that the claimed subject matter solved a problem that was long standing in the art. However, there is no showing that others of ordinary skill in the art were working on the problem and if so, for how long. In addition, there is no evidence that if persons skilled in the art who were presumably working on the problem knew of the teachings of the above cited references, they would still be unable to solve the problem. See MPEP § 716.04.

In view of the foregoing, when all of the evidence is considered, the totality of the rebuttal evidence presented by Ugo Bianchi of nonobviousness fails to outweigh the evidence of obviousness.

Conclusions

9. No claims are allowed.

10. **Contact Information**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thurman Wheeler whose telephone number is (571)270-1307. The examiner can normally be reached on 9:00 a.m.-5:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Blanchard can be reached (571)272-0827. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

T.W.

/Anne M. Gussow/
Primary Examiner, Art Unit 1643